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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/717,290	11/22/2000	Michael Ben Nun	Q60553	2047

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EXAMINER	
NGUYEN, STEVEN H D	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/717,290	BEN NUN ET AL.	
	Examiner	Art Unit	
	Steven HD Nguyen	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-87* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,17-19,24-47,52-54,59-75,79,80 and 84-87* is/are rejected.

7)☒ Claim(s) *13-16,20-23,48-51,55-58,76-78 and 81-83* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/14/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 85 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claim is dependent by itself. The examiner assumes that it is dependent on claim 84.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 25, 35-37 and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Aweya (USP 6788697).

Regarding claims 1 and 35, Aweya discloses (Figs 1-7 and col. 1, lines 19 to col. 10, lines 35) a packet transfer apparatus for a network system said apparatus comprising a packet receiver that accepts an input of packets from a first network Segment (Fig 2B, Ref 54); a packet classifier that classifies packets based on their respective process flows (Fig 2B, Ref 52); a

packet discarder to discard packets (Fig 2B, Ref 42 and Ref 106); a packet sender that sends packets to a second network segment (Fig 2B, Ref 58).

Regarding claims 2 and 36, Aweya discloses the network packet transfer unit is a router (Col. 5, lines 24-35).

Regarding claims 3 and 37, Aweya discloses the network packet transfer unit is a switch (Col. 5, lines 24-35).

Regarding claims 25 and 60, Aweya discloses early discard of packets is performed by randomly discarding packets (See col. 3, lines 7-41).

4. Claims 1-7, 17, 25, 35-42, 52, 60, 70, 79 and 86 are rejected under 35 U.S.C. 102(e) as being anticipated by Fawaz (USP 6714517).

Regarding claims 1-7, 17, 25, 35-42, 52, 60, 70, 79 and 86, Fawaz discloses (Figs 1-13 and col. 4, lines 24 to col. 14, lines 15) a system and method of transferring packets form a switch or router (Col. 4, lines 23-30) in a network comprising accepting an input of packets from a first network segment (Fig 6, Ref 302); classifying the packets based on their process flows (Fig 6, Ref 304); discarding at least a packet by implementing RED (Fig 6, Ref 306, col. 4, lines 56-67); providing a unique process flow identification to packets belonging to a same process flow (Col 4, lines 31-44); providing information to a packet classifier regarding the discarded packet; and stopping further transfer of packets having a same PFID as the discarded packet by implementing a feedback function and upon receiving information of a discarded packet, only one more packet is sent to the RED, after which the process flow classifier ceases to transfer any further packets having the same PFID as that of the discarded packet (See col. 11, 10 to col. 12,

lines 40; after receiving the stop signal, the source transmits at least one packet before the source activates a stop function).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 4, 6-7, 8-12, 17-19, 24, 26-34, 38, 41-47, 52-54, 59, 61-75, 80 and 84-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aweya in view of Fawaz (USP 6714517).

Regarding claims 4, 6-7, 17, 38, 70 and 86, Aweya discloses a method of transferring packets in a network comprising accepting an input of packets from a first network segment (Fig 2b, Ref 54); classifying the packets based on their process flows (Fig 2b, Ref 52); discarding at

least a packet (Fig 3, Ref 106) and generating a congestion to notify a source to reduce transmission rate before queue overflow. In the same field of endeavor, Fawaz discloses providing a unique process flow identification to packets belonging to a same process flow (Col 4, lines 31-44); providing information to a packet classifier regarding the discarded packet; and stopping further transfer of packets having a same PFID as the discarded packet and upon receiving information of a discarded packet, only one more packet is sent to the RED, after which the process flow classifier ceases to transfer any further packets having the same PFID as that of the discarded packet (See col. 11, 10 to col. 12, lines 40; after receiving the stop signal, the source transmits at least one packet before the source activates a stop function).

Since, Aweya suggests generating a congestion to notify a source to reduce transmission rate before queue overflow by using RED. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for using for generating a backpressure to a source of transmitting data packet that cause a congestion queue in order to request the source to stop its transmission as disclosed by Fawaz into the method and system of Aweya. The motivation would have been to improve the performing of the network.

Regarding claims 5, 39-40, Aweya discloses a feedback mechanism between the packet discarder and the packet classifier (Fig 2B which implements RED between the Ref 52 and 56; See col. 3, lines 7-41).

Regarding claims 8-12, 18-19, 24, 41-47, 52-54, 59, 71-75 and 80, Aweya fails to fully disclose the claimed invention. However, the examiner takes an official notice that only packets having the same PFID and a packet sequence number higher than a packet sequence number of

the discarded packets are not transferred to the RED; resuming sending packets upon detecting a retransmit of the discarded packet; said detecting is based on the packet sequence number of the discarded packet; the apparatus sends an acknowledgement packet, said acknowledgement being sent from a destination of the discarded packet to a source of the discarded packet, said acknowledgement containing a sequence number of the discarded packet; said apparatus is capable of ignoring the acknowledgment packet; upon receiving information of a discarded packet, only one more packet is sent to the RED, after which the process flow classifier ceases to transfer any further packets having the same PFID as that of the discarded packet; capable of resuming sending of packets upon detection of a retransmit of the discarded packet; capable of ignoring an acknowledgment packet transmitted from the destination to the source requesting the retransmit of the discarded packet; the one more packet is a next immediately available packet having the same PFID are well known and expected in the such as using a backpressure to notifying the upstream device to prevent the source from transmission based on flow information and packet sequence number and resuming of transmission based on the notifying of the destination such NAK which includes a packet sequence number, router ignores the ack packet because it only routes the ACK packet. Therefore, it would have been obvious to one of ordinary skill in the art to apply the functions into the teaching of Aweya/Fawaz in order to improve the performing of the network.

Regarding claims 26, 61 and 87, Aweya fails to disclose the claimed invention. However, examiner take an official notices that a weighted random early discard technique is well known in the art because it is an extension of RED. Therefore, it would have been obvious to one of ordinary skill in the art to apply the functions into the teaching of Aweya/Fawaz in

order to improve the performing of the network by dropping standard traffic more frequently than premium traffic during periods of congestion.

Regarding claims 27-34, 62-69 and 84-85, Aweya fails to fully disclose the claimed invention. However, the examiner takes an official notices that a method and system that capable of detecting an acknowledgment packet from the destination; capable of identifying packets using their process flow identification (PFID); ceasing a transfer of packets having the same PFID; capable of ceasing transfer of packets having the same PFID from a source to a destination; capable of resuming transfer of packets with the same PFID when a retransmit request for the packet is detected; capable of extracting a packet sequence number from the acknowledgment packet; capable of ceasing transmission of packets from the source to the destination having the same PFID and a packet sequence number larger than that of the extracted packet sequence number; capable of resuming transmission of packets with the same PFID when retransmit of the packet requested is detected are well known and expected in the art such as detecting the ack packet and using the packet sequence in the ACK to stop the transmission of new packet and retransmission of the dropped packet and resuming the transmission of new packet if the packet is not loss based on the received ACK. Therefore, it would have been obvious to one of ordinary skill in the art to apply the functions into the teaching of Aweya/Fawaz in order to improve the performing of the network.

8. Claims 8-12, 18-19, 24, 26-34, 43-47, 53-54, 59, 61-69, 71-75, 80, 84-85 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fawaz (USP 6714517).

Regarding claims 8-12, 18-19, 24, 26-34, 43-47, 53-54, 59, 61-69, 71-75, 80, 84-85 and 87, Fawaz fails to disclose fully the claimed invention. However, theses claims are rejected with

the same rationale of the claims 8-12, 18-19, 24, 26-34, 43-47, 53-54, 59, 61-69, 71-75, 80, 84-85 and 87. Therefore, it would have been obvious to one of ordinary skill in the art to apply the functions into the teaching of Fawaz in order to improve the performing of the network and by dropping standard traffic more frequently than premium traffic during periods of congestion.

Allowable Subject Matter

9. Claims 13-16, 20-23, 48-51, 55-58, 76-78 and 81-83 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As claims 13, 20, 48, 55, 76 and 81, the prior arts fail to disclose the apparatus is capable of measuring an elapsed time between the discarding of the packet and a time immediately prior to receipt of the acknowledgment packet.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pashtan (USP 6542466) discloses a system and method for classifying the data packets and performing flow control.

Raisanen (USP 6633540) discloses a system and method for classifying the data packets and performing flow control.

Pearson (USP 6647424) discloses a system and method for classifying the data packets and performing flow control.

Fukushima (USP 6292489) discloses a system and method for classifying the data packets and performing flow control.

Nichols (USP 6608816) discloses a system and method for classifying the data packets and performing flow control.

Lin (USP 6463068) discloses a system and method for classifying the data packets and performing flow control.

Waclawsky (USP 6628610) discloses a system and method for classifying the data packets and performing flow control.

Barri (USP 6657962) discloses a system and method for classifying the data packets and performing flow control.

Fawaz (USP 6654374) discloses a system and method for classifying the data packets and performing flow control.

Hadi Salim (USP 6535482) discloses a system and method for performing flow control with backpressure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven HD Nguyen
Primary Examiner
Art Unit 2665
9/29/04